

WHAT IS CLAIMED IS:

1. An etching apparatus comprising:

a chamber having a gas inlet, a gas outlet, a place for setting an object to be etched,
and a shield device provided on said place and surrounding said object to be etched,

5 wherein said shield device has an opening the size of which is determined by an
opening area ratio to be etched.

2. The etching apparatus of claim 1, wherein said shield device allows etching gas
to pass through said opening area.

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3. The etching apparatus of claim 1, further comprising an upper electrode and a
lower electrode, and

wherein said object to be etched is set between said upper electrode and said lower
electrode.

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4. The etching apparatus of claim 1, wherein said shield device has a circle shape.

5. The etching apparatus of claim 1, wherein said opening area ratio is a ratio of an
area to be removed by etching with respect to an entire area before etching.

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6. An etching apparatus comprising:

a chamber having a gas inlet, a gas outlet, a place for setting an object to be etched,
and a shield device provided on said place and surrounding said object to be etched,

25 wherein said shield device comprises one shield unit or a combination of two or
more shield units selected from a plurality of shield units having different opening sizes

that said shield device has an opening size of which is determined by an opening area ratio to be etched.

7. The etching apparatus of claim 6, wherein said shield units having different size
5 openings, opening of said shield device is adjusted by selection of utilizing shield units.

8. The etching apparatus of claim 6, wherein each of the plurality of shield units contains silicon as a main component.

10 9. The etching apparatus of claim 6, wherein the plurality of shield units include at least two shield units whose main components differ from each other.

10. The etching apparatus of claim 6, wherein the plurality of shield units include a first shield unit containing silicon as a main component and a second shield unit containing
15 a material other than silicon as a main component.

11. The etching apparatus of claim 6, wherein said shield device allows etching gas to pass through said opening area.

20 12. The etching apparatus of claim 6, further comprising an upper electrode and a lower electrode, and

wherein said object to be etched is set between said upper electrode and said lower electrode.

25 13. The etching apparatus of claim 6, wherein said material other than silicon

contains at least one material selected from the group consisting of quartz (SiO_2), silicon carbide (SiC), aluminum oxide (Al_2O_3) and yttrium oxide (Y_2O_3).

14. The etching apparatus of claim 6, wherein the plurality of shield units include at
5 least a shield unit containing, as a main component, the same material as the object to be etched.

15. The etching apparatus of claim 6, wherein the shield device has a circle shape.

10 16. An etching method using an etching apparatus including a shield device, said shield device having an opening area and provided on surrounds an object to be etched, the method comprising the steps of:
mounting said object to be etched on a place ;
introducing a gas into a chamber to generate a plasma of said gas and performing
15 etching on said object to be etched; and
adjusting said size of said opening of said shield device by determining an opening area ratio to be etched, before performing an etching step.

17. The etching method of claim 16, wherein the step of adjusting said size of said
20 opening of said shield device includes said step of selecting one shield unit or a combination of two or more shield units from a plurality of shield units having opening of different sizes that said opening of said shield device has a size which is determined by an opening area ratio to be etched.

25 18. The etching method of claim 16, wherein the plurality of shield units include at

least two shield units whose main components differ from each other.

19. The etching method of claim 16, wherein said gas contains at least one gas selected from the group consisting of CF_4 , CHF_3 , C_4F_8 , C_5F_8 , C_4F_6 and C_2F_6 .

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20. The etching method of claim 16, wherein said shield device allows etching gas to pass through said opening area.

21. The etching method of claim 16, wherein said shield device has a circle shape.